# APPLICATION FOR THE CLEAN OHIO CONSERVATION FUND

October 2001

SUMMARY SHEET CB AAC

IMPORTANT: Please consult the "Instructions for Completing the Project Application" for assistance with this form.

APPLICANT: City of Springdale CODE # 061 - 74104
(If Unknown Call OPWC)

DISTRICT NUMBER: 2 COUNTY: Hamilton DATE 3/30/02

CONTACT: Bruce Koehler, OKI Regional Council PHONE # ( 513) 621-6300

(THE PROJECT CONTACT PERSON SHOULD BE THE INDIVIDUAL WHO WILL BE AVAILABLE DURING BUSINESS HOURS AND WHO CAN BEST ANSWER OR COORDINATE THE RESPONSE TO QUESTIONS)

FAX: (513) 621-9325 EXT. 112 E-MAIL bkoehler@oki.org

PROJECT NAME: Beaver Run Riparian Corridor Restoration Project

**ELIGIBLE APPLICANT**
(Check Only 1)

__ A. County (1)
_X_ B. City (2)
__ C. Township (3)
__ D. Village(4)
__ E. Conservancy District (6)
__ F. Soil & Water Conservation District (7)
__ G. Joint Recreational District (8)
__ H. Park District/Authority (9)
__ I. Nonprofit Organization (10)
__ J. Other_____ (11)

**PROJECT TYPE**
(Check Largest Component)

__A. Open Space (7)

X B. Riparian Corridor (8)

**PRIMARY PROJECT EMPHASIS** 18
(Choose a category from Attachment A which most closely describes our primary project emphasis.)

**ESTIMATED TOTAL PROJECT COST** (from 1.1f): $ 268,821

**CLEAN OHIO CONSERVATION FUNDING REQUESTED:** (from 1.2e) $ 208,821

**NRAC APPROVAL - To be completed by the NRAC Committee ONLY**

GRANT: $_____

**FOR OPWC USE ONLY**

PROJECT NUMBER: _____ APPROVED FUNDING: $_____

Local Participation _____% Project Release Date: _____

Clean Ohio Fund Participation _____%

## 1.O PROJECT FINANCIAL INFORMATION:

1.1 Project Estimated Costs

(a.) Acquisition Expenses
Enter land purchase and/or easement purchase acquisition costs. If there are other acquisition expenses, please define under "Other".

(b.) Planning and Implementation
Enter costs for planning such as appraisal fees, closing costs, title search, environmental assessments, and design. If there are additional planning and implementation costs not identified on the application, please define under "Other Eligible Costs".

(c.) Construction or Enhancement of Facilities
Enter estimated construction costs to be paid to contractors or to be completed with in-kind work (through your own employees/volunteers). These costs must be supported by and consistent with a detailed architect's or engineer's estimate.

(d.) Permits, Advertising, and Legal
Enter direct expenses for permit fees, advertising, and legal fees.

(e.) Construction Contingencies
Enter contingency amount indicated in your architect's or engineer's certified cost estimate (this amount should not exceed 10% of estimated construction costs).

(f.) Total Estimated Costs
Enter the total of items (a.) through (e.). Please round to the nearest dollar.

In- Kind Column
Indicate amount of work to be performed by your own employees. This could also include donated land, services and/or materials and volunteer labor. This should be supported by an architect's or engineer's estimate in compliance with the Ohio Revised Code.

**Ineligible Costs** - The following costs do not qualify for funding:

Projects shall not include hydro modification projects such as dams, dredging, sedimentation and bank clearing and shall not accelerate untreated water runoff or encourage invasive nonnative species.

Projects shall not include costs of planning or administrative services of a district NRAC, in reviewing, recording, approving, or disapproving project applications.

## 1.0 PROJECT FINANCIAL INFORMATION

### 1.1 PROJECT ESTIMATED COSTS: (Round to Nearest Dollar)

| | | TOTAL DOLLARS | In Kind Dollars (See definition in instructions.) |
|---|---|---|---|
| a.) | Acquisition Expenses: | $ .00 | |
| | Fee Simple Purchase | $ | |
| | Easement Purchase | $ | |
| | Other | $ | |
| b.) | Planning and Implementation: | $ .00 | |
| | Appraisal | $ | |
| | Closing Costs | $ | |
| | Title Search | $ | |
| | Environmental Assessments | $ | |
| | Design | $17,000 | |
| | Other Eligible Costs | $ | |
| c.) | Construction or Enhancement of Facilities: | $ 224,383.00 | $ 51,000 |
| d.) | Permits, Advertising, Legal: | $ 5,000.00 | |
| e.) | Contingencies: (not to exceed 10% of total costs) | $ 22,438.00 | |
| f.) | **TOTAL ESTIMATED COSTS:** | $ 268,821.00 | |

319,921

1.2 Project Financial Resources

In this section, provide a breakdown of all project funding sources including the total amount of funding from each source and percentage in relation to the total project cost.

(a) Local In-Kind Contributions - indicate the dollar value of force account labor (applicant's own employees), materials, equipment, or volunteer labor that will likely be contributed by the applicant toward the project.

(b) Applicant Contributions (Local Funds) - indicate the dollar amount of actual applicant support, e.g. general revenues, local debt, user fees, etc.

(c) Other Public Revenues - indicate other funding sources and dollar amounts expected from these sources. Nature Works, Land Water Conservation Fund, Ohio Environmental Protection Agency (OEPA), Ohio Water Development Authority (OWDA), Community Development Block Grant (CDBG), Ohio Department of Natural Resources (ODNR), or others.

(d) Private Contributions - Any private sources such as developers, assessments, etc.

(e) Clean Ohio Conservation Fund - financial assistance from the Clean Ohio Conservation fund. Please also include participation from other Natural Resources Assistance Councils. Applicants may request grants up to seventy-five percent (75%) of the total project cost.

(f) Total Financial Resources - total items (a) through (e). This sum must equal the total estimated costs in section 1.1 (f). The sum of the percentages should equal 100%.

1.3 Availability of Local Funds

**Indicate the status (date available) of all funding sources identified in sections 1.2(a) through 1.2(d)** For applicant contributions, a Status of Funds Report should be signed by the applicant's CFO which certifies that all local share funds are available as indicated in the application and have been formally earmarked for the project. The CFO should also indicate status of all non-Clean Ohio Conservation funds to be used for the project. For other public revenues, indicate the specific program from which the funds are coming.

1.2 PROJECT FINANCIAL RESOURCES:
(Round to Nearest Dollar and Percent)

| | | DOLLARS | % |
|---|---|---|---|
| a.) | In-Kind Contributions | $51,100 | |

(Please define) Additional planning and management, site preparation labor (removing rocks, honeysuckle, shopping carts and litter), use of city equipment, demonstration and education program, presentations and publicity.

| | | | |
|---|---|---|---|
| b.) | Applicant Contributions (Local Funds) | $ 60,000.00 | |
| c.) | Other Public Revenues | | |
| | Nature Works | $ .00 | |
| | Land Water Conservation Fund | $ .00 | |
| | Ohio Environmental Protection Agency | $ .00 | |
| | Ohio Water Development Authority | $ .00 | |
| | Community Development Block Grant | $ .00 | |
| | Ohio Department of Natural Resources | $ .00 | |
| | OTHER_____ | $ .00 | |
| d.) | Private Contributions | $ .00 | |
| *SUBTOTAL LOCAL RESOURCES:* | | $111,100 | 35% |
| e.) | CLEAN OHIO CONSERVATION FUND: | $ 208,821.00 | |
| | Funds from another NRAC | $ .00 | |
| *SUBTOTAL CLEAN OHIO RESOURCES:* | | $ 208,821.00 | 65% |
| f.) | TOTAL FINANCIAL RESOURCES: | $ 319,921 | 100% |

1.3 AVAILABILITY OF LOCAL FUNDS:

**Attach a statement signed by the Chief Financial Officer listed in section 4.2 certifying all local share funds required for the project will be available on or before the earliest date listed in the Project Schedule section.**

Please list any partnership with other sources. (i.e.; is this part of a larger project or plan): The Beaver Run Riparian Corridor Restoration Project is along a proposed greenway system

route mapped in the *Mill Creek Watershed Greenway Master Plan* (Mill Creek Watershed Council, Mill Creek Restoration Project and consultants, 1999). The proposed riparian corridor enhancements at a public park will fulfill several *Greenway Master Plan* recommendations. The project also addresses recommendations and priorities previously identified in the *Mill Creek Watershed Management Plan* (OKI Regional Council of Governments, 1995), *Biological and Water Quality Study of Mill Creek and Tributaries* (Ohio EPA, 1994) and the *Regional Water Quality Management Plan* (OKI, 1977).

Preliminary projects and plans also recommend improvements proposed by the Beaver Run Riparian Corridor Restoration Project. Examples of this include the draft version of *Total Maximum Daily Loads for the Mill Creek in Hamilton and Butler Counties* (Ohio EPA, 2001) and the *Mill Creek Watershed Action Plan,* which is being developed by the Mill Creek Watershed Council and Mill Creek Restoration Project. (See attachments for copies of appropriate passages from some of the plans named above.)

## 2.0 PROJECT INFORMATION

### 2.2 Brief Project Description

Describe the improvements resulting directly from implementation of this project.

(A) Specific Location - Attach a map indicating the specific location. If a map is not available, provide specific location of the project boundaries (where the project begins and ends).

(B) Project Components - Describe the kind of project and project components. For example, an open space project should indicate whether or not it involves habitat protection, reforestation of land, etc.

(C) Project Emphasis - Provide the project specifics. Please indicate precisely how the project meets the emphasis described in Attachment A of the project application. Include descriptive characteristics such as the size of space being acquired or enhanced.

(D) Define Terms of Easement - please refer to section 164.26 of the Ohio Revised Code for guidance.

(E) Information Regarding Public Access - Describe where the access is located. Is it open to the general public or are there restrictions? What are the hours of availability? Will the general public be given the opportunity to participate in the planning of the project?

**2.3 Ownership/Management/Operation** - Please indicate who will own, maintain, and operate the improvement.

## 2.0 PROJECT INFORMATION

If the project is multi-jurisdictional, information must be consolidated in this section.

_____ *Please check here if additional documentation is attached.*

### 2.1 BRIEF PROJECT DESCRIPTION - (Sections A through E):

A: SPECIFIC LOCATION: Please attach a map.

The project will be at Chamberlain Park in the City of Springdale, Ohio, along Beaver Run, a Mill Creek tributary. The 4-mile-long stream begins in the City of Forest Park to the west and has a tributary from Butler County to the north. It flows in an easterly direction toward the City of Sharoville, where it reaches confluence with the Mill Creek less than 1,000 feet from the cloverleaf interchange for Interstate 75 and Interstate 275. The stream' s drainage area is part of the subwatershed titled Mill Creek, headwaters to Sharon Creek in the Ohio Water Resource Inventory, which states that "habitat modification has a pervasive influence." (See attachments for location maps.)

PROJECT COUNTY: Hamilton County PROJECT ZIP CODE: 45246

B: PROJECT COMPONENTS: Please describe the various project components.

This project will stabilize and enhance a degraded riparian corridor that runs the risk of a costly wash out but holds the promise of cost-effective restoration.

Project partners will implement a variety of bioengineering techniques that fit within the overall plan for ecologically informed design. As the project progresses, the partners will demonstrate riparian corridor practices to others who can benefit by the example of a restored urban stream. Although this project is not in response to NPDES (National Pollutant Discharge Elimination System) requirements, it will provide lessons on how to address issues raised by Phase II stormwater management regulations because Beaver Run is heavily influenced by stormwater.

The project site' s location at a city park makes its easily accessible, highly visible and open to the public on a daily basis. These advantages serve to strengthen the project' s educational program, which is a vital project component before, during and after implementation.

Project design is 50 percent complete. See the BHE Environmental, Inc., appendix for details and photos. Its basic intent is to restore natural stream conditions in an aesthetically pleasing manner while reducing water velocity and increasing water storage. Biological knowledge and engineering concepts are behind the preferred alternatives for improving the stream channel and adjoining streambanks in two places:

- the confluence of Beaver Run and a tributary draining from I-275, Tri-County Mall and other commercial properties
- a Beaver Run segment flowing next to north bank households, just downstream of the tributary's confluence with Beaver Run

Extensive hydromodification has turned the tributary into a flash flood waterway that cuts deeper into the streambed, undermines fill materials, erodes streambanks, sends sediments downstream and collects discarded items, especially shopping carts. The tributary is disturbed but redeemable. If left unrestored, it could ultimately cause costly problems for nearby infrastructure (e.g., I-275) and commercial land uses (e.g., Tri-County Mall). The economic stakes are high.

Within 100 yards of the tributary confluence, Beaver Run is degrading from sediment deposition and siltation on the inside bend, and streambank erosion and slump failure (or sloughing) on the outside bend. The stream segment is constricted but still connected to its right bank floodplain. If left unremediated, this stream bend will wash out the back yards of several streamside houses, threaten their foundations and aggravate localized flooding.

These problems form the core of the project components that will progress from conceptualization to physical reality. The non-physical components -- namely surveillance, analysis and design -- are well under way. Funding and implementation will make possible four other project components: demonstration/education, monitoring, evaluation and readjustment. Dr. Michael C. Miller, an aquatic ecologist at the University of Cincinnati, has agreed to volunteer time as a project partner on the other four project components.

Much of the demonstration/education and monitoring will occur during field day events, when students and volunteers will be recruited this summer and fall to remove infestatations of invasive, non-native Amur honeysuckle bushes, clear out shopping carts and other obstructions, plant native species, help install bioengineering practices, sample the stream' s water quality and macroinvertebrates, and take part in vegetation surveys. These hands-on activities will create teachable moments about bioengineering techniques within the context of riparian corridor management. Project co-manager Bruce Koehler will seek participation by the various organizations and agencies he collaborates with in his work. Among the organizations to be courted are Mill Creek Watershed Council, Mill Creek Restoration Project, Izaak Walton League of America, Greenacres Foundation, OKI Regional Conservation Council, Our Plants Are Native, Northside Greenspace, Inc., Wild Ones, Ohio Society for Ecological Restoration, Citizens' Land Conservancy and even Friends of the Great Miami, which plans to start sponsoring hands-on projects in the Great Miami River watershed.

Measurable benefits of the project will include decreases in:

- water velocity;
- erosion;
- nonpoint source pollution to Beaver Run and the Mill Creek;
- streambank slump failure;
- infrastructure maintenance costs;
- property damage;
- siltation of the streambed;
- invasive, nonnative plants;
- stream water temperature;
- eutrophication;

and increases in:

- bank full flow capacity (storage);
- native plants;
- shading;
- organic material in the form of detritus;
- wildlife habitat
- aesthetically pleasing riparian corridor.

C: PROJECT EMPHASIS AS DEFINED BY SECTIONS 164.22 (A) (B) OF THE OHIO REVISED CODE AND LISTED IN APPENDIX A: Please describe.

Project emphasis items are addressed here one by one, as numbered in the Hamilton County NRAC Scoring Methodology:

1. The project site, Chamberlain Park, has been identified as a biotic refuge by Dr. Stanley Hedeen, Biology Department, Xavier University. Dr. Hedeen began studying the Mill Creek three decades ago and wrote *The Mill Creek: An Unnatural History of an Urban Stream*, a book published in 1994. In the same year, Dr. Hedeen developed *Biotic Refuges in the Mill Creek Region.* Chamberlain Park is one of 22 refuges listed in the four-page document. Also listed is Hilma-Ross Memorial Park, another Springdale park along Beaver Run, about 1.5 miles upstream of Chamberlain Park.

   Dr. Hedeen describes a biotic refuge as a "watershed area than can anchor recovery efforts." He further states: "Refuges of biological diversity serve as sources of organisms for adjacent areas recovering from pollution and habitat disturbance."

   Now that a specific project site has been chosen, project partners will arrange additional surveillance for valuable species or natural features. At least two of the project partners – Dr. Michael C. Miller, an aquatic ecologist at the University of Cincinnati, and Dr. Craig Straub, a restoration ecologist at BHE

Environmental, Inc. -- are qualified to identify plants, animals or exemplary communities worthy of the Natural Heritage Inventory. The project' s co-manager -- Bruce Koehler of the OKI Regional Council of Governments -- has collaborated with others qualified to assess Beaver Run' s natural heritage. Historically, Beaver Run consistently appears on old maps of Hamilton County, including one published in 1835. (See the attachments for location maps.)

2. Amur honeysuckle bushes dominate a streambank along Beaver Run tributary. They will be eliminated to make way for the planting of native sedges, rushes, willows, shrubs and trees.

3. The project will preserve and enhance high quality habitat along Beaver Run' s right bank, just downstream of the tributary confluence. Sycamore, cottonwood, box elder and other native bottomland trees provide the basis for a healthy ecosystem.

4. Beaver Run' s right bank floodplain is intact but threatened by a narrowing stream channel. The project will remove a bar formation of sand/silt deposits and widen the channel, giving the stream a better connection with its floodplain. Beaver Run overlies the edge of the Great Miami Buried Valley Aquifer System in an area that can yield 100 to 500 gallons of groundwater per minute, according to a buried valley aquifer map by the Ohio Department of Natural Resource, Division of Water. Project designs to slow water, increase storage and remove silt from the streambed will increase recharge of the sand and gravel aquifer.

5. By slowing water velocity, reducing erosion, reducing nonpoint source pollution, lowering water temperature (with shade), amending poorly textured fill soils and removing sand/silt from the stream channel, the project will restore water quality.

6. The project is designed to restore a more natural slope and shape to the streambed and bank, where erosion, undercutting, streambank slump failure, sedimentation and siltation are now degrading stream morphology.

7. Although Beaver Run' s right bank floodplain has some wetland potential, the project site is not identified as a wetland by the National Wetland Inventory.

8. Much of the project revolves around the planting of native sedges, rushes, willows, shrubs and trees next to Beaver Run and a tributary.

9. The project will contribute to the quality of life and Ohio' s natural heritage by restoring riparian corridor between a public park and a subdivision. Discarded

concrete, poorly textured fill dirt, junk and debris will be removed to make room for a water-calming plunge pool with energy dissipaters and steps. Steep, eroding streambanks will give way to more gently sloping, stable streambanks. Non-native, invasive honeysuckle bushes will give way to native sedges, rushes, willows, shrubs and trees. This work will occur in a census tract with a high-percentage of economically disadvantaged and minority population than the rest of Springdale, thus taking a step in the right direction towards environmental justice.

10. The project does not acquire open space because it is proposed for a site where a five-acre city park already exists.

11. Filtration, improved water quality and stormwater runoff control are prime considerations in the project design and planting scheme.

12. Aesthetically pleasing and ecologically informed design are characteristic of the project plans for removing shopping carts, tires, trash , concrete chunks, poorly textured fill dirt, unstable rip rap and honeysuckle bushes in favor of a more natural stream cross-section and hundreds of native plants. The project will be sensitive to the terrain by lessening the slope on steep, failing streambanks and by building a series of step pools where the tributary now drops about 30 feet from culvert pipe to stream channel in a short distance.

13. The project enhances educational opportunities for a variety of people, particularly the students of Heritage Hill Elementary School, a Princeton School District facility on the north side of Beaver Run, about a half-mile from the project site. The Springdale Chamber of Commerce has already agreed to publicize the project in its newsletter and on its web site and to allow a project presentation at one of the chamber's lunch meetings.

14. The project site, Chamberlain Park, is one of six parks in the Springdale park system. With the exception of one soccer field, Chamberlain Park is suited for such passive recreation activities as nature walks, bird watching or leaf collecting. It is also the site of community composting piles. These attributes increase the park' s value as a site for riparian corridor restoration. The project favors linkages to other parks and neighborhoods by slowing water velocity, increasing storage and reducing sediment load in a stream that crossed by two roadway fords and passes through three sets of bridge piers downstream of the project site.

15. The project supports recommendations made in *The Mill Creek Watershed Greenway Master Plan.* (See the attachments for location maps.)

16. Though the project site is already accessible by virtue of its location next to a city park open dawn to dusk, seven days a week, the project will improve access to the stream by giving steep streambanks a gentler slope and by clearing out infestations of honeysuckle bush.

17. The project site is not an area for fishing, hunting or trapping. People have been observed fishing on the Mill Creek, which Beaver Run flows into.

18. Economic and recreational benefits of the project will improve the quality of life for people in a census tract with 882 households in the lower income bracket (i.e., households with 80 percent or less of the census tract' s median household income of $30,201 in 1989). This amounts to 38 percent of the 2,342 households in Census Tract 223.01. Of the 882 lower income households, 509 households, or 22 percent, meet the criteria for low income (50 percent or less of median income). See the attachments for more information on household incomes for the census tract in which the project is located.

    Springdale is generally viewed as an affluent city with its many retail and commercial establishments. Nevertheless, the city also has a significant number of residents of modest economic means. Many of them occupy the apartment complexes bordering the south bank of Beaver Run, within walking distance of the project site. The project's census tract has a 25 percent minority population.

D: DEFINE TERMS OF EASEMENTS:
PLEASE REFER TO SECTION 164.26 OF THE OHIO REVISED CODE.
The project does not acquire property or easements, nor is it dependent on easements for use of the city-owned project site.

E: INFORMATION REGARDING PUBLIC ACCESS
Where is the access located? Is it open to the general public or are there restrictions? What are the hours of availability? Will the general public be given the opportunity to participate in the planning of the project?
The project site is easily accessed by a public street (Marwood Court), which leads to a nearby paved parking area. The park is open to the general public without restrictions. The hours of availability are dawn to dusk, seven days a week. The general public will be given the opportunity to participate in planning project volunteer work days and demonstration/education events.

2.2 OWNERSHIP/MANAGEMENT/OPERATION: Please address.

The project site is a city-owned park. As such it is managed and operated by Springdale's Department of Parks and Recreation, which is headed by James Burton, Recreation Director. Springdale's Department of Parks and Recreation is managed and operated in accordance with standard operating procedures that ensure continuing maintenance of project improvements. Parks and Recreation employees work at Chamberlain Park at least three days a week during the warmer months and two days a week during the colder months.

## 3.0 PROJECT SCHEDULE

Indicate the estimated beginning and ending dates of your project. (3.1) planning and implementation, (3.2) land acquisition/easements, (3.3) site improvements. If dates are not applicable to your project, please enter "N/A".

Projects with schedules that lend themselves to a future program year may be returned for resubmission at a later date.

## 4.0 PROJECT OFFICIALS

### 4.1 Chief Executive Officer (CEO)

Identify the person who will have legal authority to sign a project agreement as indicated in the required authorization (see Section 5.0, Attachments). This person **must** have the authority to enter into a contract with the commission. Examples of a CEO are: the chair/president of the board of county commissioners or township trustees, a mayor or manager of a city or village. Include title, mailing address, phone number, fax number, and e-mail address, if available. **Project Agreements from the OPWC will be mailed directly to the Chief Executive Officer for execution**.

### 4.2 Chief Financial Officer (CFO)

Identify the person who will have legal responsibility for managing both local and state funds. The CFO reviews and certifies the validity and accuracy of accounts, reviews invoices associated with the project, and assists in requesting the disbursement of program funds from the OPWC. Examples of a CFO are: county or city auditor, clerk/treasurer, or finance director. Include title, mailing address, phone number, fax number, and e-mail address, if available.

### 4.3 Project Manager (PM)

Identify the person with whom OPWC should have contact regarding administration of the project. This person could be a county or city engineer, an employee of the applicant, or a contracted consultant. Include title, mailing address, phone number, fax number, and e-mail address, if available.

## 3.0 PROJECT SCHEDULE:*

| | | BEGIN DATE | END DATE |
|---|---|---|---|
| 3.1 | **Planning and Implementation:** | 2/9/02 | 5/31/03 |
| 3.2 | **Land Acquisition/Easements:** | not necessary | / / |
| 3.3 | **Site Improvements:** | 2/28/03 | 5/31/03 |

**The begin date for site improvements marks the start of bioengineering work, which is best initiated a few weeks before spring 2003. Removal of honeysuckle bushes, concrete chunks, shopping carts and other obstacles can begin this spring. The demonstration/education program can begin in conjunction with the removal of non-native, invasive plants such as honeysuckle.**

* Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by a project official of record and approved by the commission once the Project Agreement has been executed.

## 4.0 PROJECT OFFICIALS:

| | | |
|---|---|---|
| 4.1 | CHIEF EXECUTIVE OFFICER | Doyle H. Webster |
| | TITLE | Mayor of Springdale |
| | STREET | 11700 Springfield Pike |
| | CITY/ZIP | Cincinnati, Ohio 45246 |
| | PHONE | (513) 346-5700 |
| | FAX | (513) 346-5745 |
| | E-MAIL | dwebster@springdale.org |
| 4.2 | CHIEF FINANCIAL OFFICER | Edward F. Knox |
| | TITLE | Clerk of Council/Finance Director |
| | STREET | 11700 Springfield Pike |
| | CITY/ZIP | Cincinnati, Ohio 45246 |
| | PHONE | (513) 346-5700 |
| | FAX | (513) 346-5745 |
| | E-MAIL | eknox@springdale.org |
| 4.3 | PROJECT CO-MANAGER | Bruce Koehler |
| | TITLE | Senior Planner at OKI Regional Council of Governments |
| | STREET | 801-B West Eighth Street, Suite 400 |
| | CITY/ZIP | Cincinnati, Ohio 45203-1607 |
| | PHONE | (513) 621-6300, ext. 112 |
| | FAX | (513) 621-9325 |

| | |
|---|---|
| E-MAIL | bkoehler@oki.org |
| PROJECT CO-MANAGER | Beth Stiles |
| TITLE | Assistant to the City Administrator /Economic Development Director |
| STREET | 11700 Springfield Pike |
| CITY/ZIP | Cincinnati, Ohio 45246 |
| PHONE | (513) 346-5700 |
| FAX | (513) 346-5745 |
| E-MAIL | bstiles@springdale.org |

Changes in Project Officials must be submitted in writing from the CEO or CFO.

## 5.0 ATTACHMENTS/COMPLETENESS REVIEW:

**BE CERTAIN EACH OF THE ITEMS LISTED BELOW IS ATTACHED. YOUR APPLICATION MAY BE DELAYED OR REJECTED IF THE INFORMATION IS OMITTED OR INCOMPLETE. FOR YOUR CONVENIENCE, SAMPLE DOCUMENTS ARE ATTACHED TO THESE INSTRUCTIONS.**

A certified copy of the authorization by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts with the commission. This individual should sign under 6.0, Applicant Certification, below.

A certification signed by the applicant's chief financial officer stating all local share funds required for the project will be available on or before the dates listed in the Project Schedule section.

A formal detailed estimate of the project's costs provided by an architect, landscape architect, or other professional. For land acquisition, an appraisal by a State-certified general real estate appraiser, as defined under ORC 4763 for the type of land being appraised will need to be submitted to the NRAC prior to closing.

A cooperation agreement, (if the project involves more than entity) which identifies the fiscal and administrative responsibilities of each participant.

Resolution of Support (please refer to section 164.23(B)(1) of the Ohio Revised Code for guidance.)

Identification of any participation by state agencies that may have expertise regarding the particular project and that may provide assistance with respect to the project.

Information concerning the coordination of the project among local political subdivisions, state agencies, federal agencies, community organizations, conservation organizations, and local business groups.

Supporting Documentation: Materials such as additional project description, photographs, and/or other information to assist your NRAC in ranking your project. Be sure to include supplements which may be required by your *local* NRAC.

Have you reviewed your NRAC's methodology to see that you have addressed all components?

## 6.0 APPLICANT CERTIFICATION:

The undersigned certifies: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

**Applicant certifies that the project, as defined in the application, has NOT resulted in any transfer of title or rights to land or begun any type of physical improvements prior to the execution of a Project Agreement with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding.**

_____

Certifying Representative (Type or Print Name and Title)

# City of Springdale

DOYLE H. WEBSTER
Mayor

CECIL W. OSBORN
City Administrator

EDWARD F. KNOX
Clerk of Council / Finance Director

April 1, 2002

A Resolution of Support and a request for authorization to apply for, accept, and execute contracts with the Ohio Public Works Commission for the Beaver Run Restoration Project will be presented to the City Council of Springdale on Wednesday, April 17, 20002 for approval.

Signed: Bruce Koehler
Project Manager

Project Manager

11700 Springfield Pike • Springdale, Ohio 45246 • (513) 346-5700 • Fax (513) 346-5745

## ATTACHMENT A

**PROJECT EMPHASIS**

NOTE: IF THE PROJECT HAS MORE THAN ONE EMPHASIS, PLEASE PLACE A "1" IN THE CATEGORY THAT IS THE PRIMARY EMPHASIS, A "2" IN THE CATEGORY WITH SECONDARY EMPHASIS, AND A "3" IN THE CATEGORY WITH THIRD EMPHASIS.

**OPEN SPACE**

____1. Protects habitat for rare, threatened and endangered species
____2. Increases habitat protection
____3. Reduces or eliminates nonnative, invasive species of plants or animals
____4. Preserves high quality, viable habitat for plant and animal species
____5. Restores and preserves aquatic biological communities
____6. Preserves headwater streams
____7. Preserves or restores flood plain and stream side forest functions
____8. Preserves or restores water quality
____9. Preserves or restores natural stream channels
____10. Preserves or restores functioning flood plains
____11. Preserves or restores wetlands
____12. Preserves or restores stream side forests
____13.Preserves or restores other natural features that contribute to quality of life and state's natural heritage

**RIPARIAN CORRIDOR**

____14. Fee simple acquisition of lands to provide access to riparian corridors or watersheds
____15. Acquisition of easements for protecting and enhancing riparian corridors or watersheds
3 16. Reforestation of land
2 17. Planting vegetation for filtration
1 18. Incorporates aesthetically pleasing and ecologically informed design
____19. Enhances educational opportunities and provides physical links to schools and after school centers
____20. Acquisition of connecting corridors
____21. Supports comprehensive open space planning
____22. Provides multiple recreational, economic and aesthetic preservation benefits

____23. Allows proper management of areas where safe hunting and trapping may take place in a manner that will preserve balanced natural ecosystems.

____24. Enhances economic development that relies on recreational and ecotourism in areas of relatively high unemployment and lower incomes

# City of Springdale

DOYLE H. WEBSTER
Mayor

CECIL W. OSBORN
City Administrator

EDWARD F. KNOX
Clerk of Council / Finance Director

April 1, 2002

I, Edward F. Knox, Finance Director of the City Of Springdale, hereby certify that the City Of Springdale has the amount of $60,000 in the General Fund account and that this amount will be used to pay the applicant revenues for the Beaver Run Bank Restoration Project when it is required.

Edward F. Knox
Finance Director

11700 Springfield Pike • Springdale, Ohio 45246 • (513) 346-5700 • Fax (513) 346-5745

# Appendix A: 50% Design and Cost Estimates

Project No. 1054.009

March 29, 2002

Mr. Cecil W. Osborn
City of Springdale
11700 Springfield Pike
Springdale, OH 45246

**Re: Bioengineering Conceptual Design Submittal for the Upper Reach of Beaver Run along Chamberlain Park, Springdale, Ohio**

Dear Mr. Osborn:

BHE Environmental, Inc. (BHE) is pleased to submit our conceptual bioengineering design to the City of Springdale in support of your application to the Ohio Public Works Commission for Clean Ohio Conservation funding. The bioengineering design represents 50% completion and contains the following design sheets:

1) Cover sheet
2) Existing conditions
3) Proposed design
4) Proposed design
5) Cross sections

The design drawings are accompanied by two separate cost estimates and narratives. The cost estimates address the I-275 tributary of Beaver Run and a portion of the main stem proposed for widening and terracing. The narratives provide a more detailed interpretation of the design drawings and also contain color photographs of existing conditions.

BHE appreciates the opportunity to provide continued services to the City of Springdale. If you have questions regarding this conceptual design, please feel free to give me a call at 326-1163.

Sincerely,
**BHE ENVIRONMENTAL, INC.**

Craig A. Straub, Ph.D
Associate Director, NEPA/Natural Resource Group

# City of Springdale, Ohio
# Beaver Run Bank Restoration Project
# Supporting Narrative For 50% Design

## A. Introduction

The proposed section of Beaver Run to be stabilized, is located in Springdale, Ohio, between Interstate I-75 and the exit at State Route 747. Precisely, this project begins at the intersection of I-275, and an 84 inch diameter, Corrugated Metal Pipe (CMP) which located under I-275, and conveys runoff water from a shopping center located south of I-275, through an approximately 250-foot tributary of Beaver Run, which flows in an easterly direction into Mill Creek at a point northeast of the intersection of I-75 and I-275.

## B. Existing Conditions

High velocity emanating from the outlet of the 84 inch CMP pipe, coupled with misalignment of stream flow from debris placement (concrete, gravel, stone, shopping carts) in the channel has diverted flow along the left bank, creating a highly erosive meander bend. As a result, the banks of the tributary are highly erosive resulting in 30-foot high banks (Photos 1,2, and 3). Soils are of poor texture, composed of sand and silt, and appear to originate from fill activities during the construction of I-275. Scouring is occuring at the base of the pipe outlet, which is undermining the soil foundation (Sheet 2).

Approximately 300 feet downstream from the confluence of the tributary and Beaver Run, the creek meanders against an existing gabion wall contructed in the early 1980's, causing the inside of the stream to lose velocity and deposit silts and sands, causing a bar formation. The gabion wall occupies approximately 400 feet of the meander bend. As the gabion wall ends, highly erosive banks with sloughing vegetative roots continue for approximately 225 feet (Sheet 2) (Photo 4).

## C. Proposed Bioengineering Design

The bioengineering conceptual design addresses improvements to portions of Beaver Run. The intent of the design is to enhance stream aesthetics of Beaver Run with an ecologically informed design while providing benefits of reduced velocity and increased storage of the tributary to Beaver Run. Engineering concepts are merged with biological knowledge to address slope stability problems within two areas of Beaver Run Creek: 1) the I-275 tributary; 2) the widening of a portion of Beaver Run Bed. This involves the use of materials made of coir fiber (coconut husk) to stabilize stream banks, excavated slopes and other erosive areas. The coconut material includes both logs and matting to provide a plant growth medium and soil moisture retention. This material degrades into the soil after plants have been established.

The traditional approach for stream stabilization has been re-channelization or stone revetment. A portion of this project is a "hybrid" bioengineering design in response to velocities emanating from the 84 inch pipe into the tributary. Energy dissipaters constructed of concrete will be installed at the pipe outlet to reduce velocity followed by a plunge pool lined with coir matting with stone placement on top of the matting. The plunge pool will further reduce velocity while increasing storage. Bioengineering techniques will be implemented above the plunge pool and along the stream channel (Sheets 4 and 5). The tributary side slopes will be regraded to 3:1 (Sheet 3).

The appropriate steps must be executed properly and in sequence for this technology to perform correctly. The staking of coir logs and fabric must be anchored to minimize debris catchment and fabric lifting during high flows. All fabric must be tied together with coir rope using specially designed hand tools to allow the material to work as a system to withstand high flow events.

Coir logs and fabric will be used in conjunction with woody cuttings and herbaceous plant species to stabilize re-contoured embankments. This approach will initiate embankment stability within a riparian corridor through the establishment of native vegetation. The coir log is a cylindrical (10' in length and a 12" diameter), boom-shaped geotextile made from compressed coconut fiber encased in a 2"x 2" coir netting. The coir fabric is a woven blanket made of coir yarn that is 100% biodegradable with a variable life expectancy of 10 years. Each fabric roll contains 0.4" x 0.5" mesh openings with half-inch thickness.

Coir matting provides soil moisture retention, allowing the seeds and vegetation to germinate and root. The matting also builds a soil matrix by accumulating sands and silts during storm events. The coir material naturally degrades while the root systems are established to stabilize the soil. Proper armoring of coir material is an effective device for soil erosion during low and high flow conditions.

A 1-foot edge trench will be formed at the toe of the slope to provide placement of the coir logs. Armoring will be conducted by using specialty designed stainless steel tools to stitch and knot the materials together with coir twine. The ends of each coir log will be tied together with coir twine and secured with wood stakes on the front side of the log, oriented downstream at a $45^0$ angle to minimize catchment of debris. The first panel of fabric will be tied to the coir log then pulled back to allow excess soil from the edge trench to be tamped against the log to provide additional stability. Additional stakes will be inserted through the fabric on the backside of the log, with similar orientation as the front side staking to "pinch" the log in place. The remaining fabric panels will be horizontally placed in sequence along the embankment and stitched together, with each panel placed six-inches over the previous panel. The connected panels will be pulled back to prepare the embankment for seeding . The bank will be scarified with a hand rake followed by the broadcast application of a perennial seed mix. Upon completion of embankment seeding, woodstakes will be inserted into the fabric panels, oriented upstream at a $45^0$ angle to minimize lift-up and associated tearing of the fabric during storm events. Steel sod staples (8inch, 8 gauge) will be randomly inserted in areas of the fabric devoid of stakes for additional anchoring (Sheets 3, 4, 5).

Willow cuttings will be planted within the fabric. A metal bar will be used to prepare a planting hole for the cuttings. Manual pressure will be applied to ensure one third of the cutting length is in direct contact with the soil. The cuttings will be oriented downstream at a $45^0$ angle to minimize catchment of debris (Sheets 4 and 5).

Rush and sedge plugs will be planted into the coir log to provide a vegetated toe of slope, positioned diagonally at 1 plug every 2 lineal feet. A metal dibble bar with a step will be used to pierce the densely compressed fibers of the coir log to provide an opening to insert the plugs (Sheets 4 and 5).

The downstream portion of the stream will involve removal of sediment deposition and construction of a terrace wall along the meander side of the stream. The sediment deposits will be used to supply some of the soil lifts. The excavated portion of sediment will be secured by using coir logs and coir matting as described above with re-contoured 3:1 side slopes.

The terrace wall will consist of 2 layers of hard gabions and 3 layers of soft gabions. Each successive soil lift will be lined with coir matting and compacted. The soil lifts will be contained by the existing slope and the gabions. The hard gabions will consist of rectangular wire baskets filled with stone or rock. The soft gabions will naturalize the appearance and consist of a coir fiber block system consisting of a densely packed elongated coir fiber block attached to a woven coir fabric. The coir fabric is tightly wrapped around coir block and secured, with extending fabric ends from top and bottom of the coir block. The male and female ends create a strong connection. Shrub and willow cuttings will planted within the soft gabions (Sheet 5).

Trees and shrubs will be planted at the top of each slope, with the exception of the terrace wall, to enhance the riparian corridor by providing food and cover for terrestrial species, increase water quality and reduce erosion. Riparian vegetation will provide shading to reduce water temperature, discourage eutrophication, and provide organic material in the form of detritus, contributing to the health of the stream.

Bioengineering techniques are necessary to support successful ecological restoration of riparian systems. The use of natural materials allows stability of natural meander patterns, aesthetic bank stabilization, and initiation of secondary succession.

COST ESTIMATE FOR BEAVER RUN BIOENGINEERING — TRIBUTARY ONLY — 1054.009

CITYOF SPRINGDALE, OHIO — BHE ENVIRONMENTAL, INC.

| | QUANTITY | | LABOR | | | | MATERIAL | | EQUIPMENT | | SUB/DRCT | PRIME | TOTAL | OVHD | | PROFIT | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TASK DESCRIPTION | No. Units | Unit | Hr/Unit | Tot. Hr | $/Hr | Cost | Unit $ | Cost | Unit $ | Cost | TOTAL | ADD-ON | DIRECT | ADD-ON | SUBTOTAL | ADD-ON | COST |
| MOB/DEMOB (CONTRACTOR) | 2 | DAYS | 8 | 16.00 | $20.17 | 322.72 | 0 | 0.00 | $200.00 | 400.00 | | | | | 722.72 | | 722.72 |
| FIELD LAYOUT WORK (CONT.) | 2 | DAYS | 10 | 20.00 | $25.00 | 500.00 | 0 | 0.00 | $50.00 | 100.00 | | | | | 600.00 | | 600.00 |
| SOIL STOCKPILE REMOVAL | 1 | LS | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | | | 500.00 | | 500.00 |
| VEGETATION REMOVAL | 1 | LS | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | | | 500.00 | | 500.00 |
| EARTHWORK (OPERATORS & EQUIP) | 1 | MONTH | 8.00 | 480.00 | 30.00 | 14400.00 | 0.00 | 0.00 | 19735 | 19735.00 | | | | | 34135.00 | | 34135.00 |
| EARTHWORK (LABORERS) | 1 | MONTH | 8.00 | 320.00 | 20.17 | 6454.40 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 6454.40 | | 6454.40 |
| INSTALLATION (LABORERS) | 3 | WEEKS | 8.00 | 720.00 | 20.17 | 14522.40 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 14522.40 | | 14522.40 |
| MATERIALS | | | | | | | | | | | | | | | | | |
| Coir logs | 70 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 56.00 | 3920.00 | 0.00 | 0.00 | | | | | 3920.00 | | 3920.00 |
| Coir matting | 14 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 228.00 | 3192.00 | 0.00 | 0.00 | | | | | 3192.00 | | 3192.00 |
| Wood Stakes (2x2x48") | 700 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 | 630.00 | 0.00 | 0.00 | | | | | 630.00 | | 630.00 |
| Wood Stakes (1x2x18") | 1000 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 240.00 | 0.00 | 0.00 | | | | | 240.00 | | 240.00 |
| Sod Staples (8 inch, 8 gauge) | 7 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 35.00 | 245.00 | 0.00 | 0.00 | | | | | 245.00 | | 245.00 |
| Coir Rope | 4 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 100.00 | 0.00 | 0.00 | | | | | 100.00 | | 100.00 |
| Herbaceous Plant Plugs | 350 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 1.20 | 420.00 | 0.00 | 0.00 | | | | | 420.00 | | 420.00 |
| Trees | 260 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 60.00 | 15600.00 | 0.00 | 0.00 | | | | | 15600.00 | | 15600.00 |
| Shrubs | 600 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 12000.00 | 0.00 | 0.00 | | | | | 12000.00 | | 12000.00 |
| Mulch Mats | 860 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 4.00 | 3440.00 | 0.00 | 0.00 | | | | | 3440.00 | | 3440.00 |
| Coir Tying Tools | 7 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 70.00 | 0.00 | 0.00 | | | | | 70.00 | | 70.00 |
| Seed | 1 | ACRE | 0.00 | 0.00 | 0.00 | 0.00 | 500.00 | 500.00 | 0.00 | 0.00 | | | | | 500.00 | | 500.00 |
| Willow Cuttings | 3000 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 1.20 | 3600.00 | 0.00 | 0.00 | | | | | 3600.00 | | 3600.00 |
| Stone | 10 | TONS | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 1000.00 | 0.00 | 0.00 | | | | | 1000.00 | | 1000.00 |
| Cement (dissipator) | 20 | YD | 0.00 | 0.00 | 0.00 | 0.00 | 65.00 | 1300.00 | 0.00 | 0.00 | | | | | 1300.00 | | 1300.00 |
| Soil | 1500 | YD | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 22500.00 | 0.00 | 0.00 | | | | | 22500.00 | | 22500.00 |
| Oversight by BHE | 1 | MONTH | 8.00 | 160.00 | 110.00 | 17600.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 17600.00 | | 17600.00 |
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| FINAL CLEAN-UP & RESTORATION | 1 | LS | | | | | | | | | | | | | 1000.00 | | 1000.00 |
| Contingency | 10% | | | | | | | | | | | | | | 14479.00 | | 14479.00 |
| TOTAL | | | | | | | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 159270.52 | 0.00 | 159270.52 |

| Assumptions in Support of Cost Estimate (Tributary Only) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Earthwork | (1 month to complete) | | | | | | | | | | | | |
| | **Equipment** | | | | | | | | | | | | |
| | 2 backhoes | | $7000/month per backhoe | | | | | | | | | | |
| | 1 dozer | | $6600/month per dozer | | | | | | | | | | |
| | 1 frontloader | | $4635/month per frontloader | | | | | | | | | | |
| | 1 bobcat | | $1500/month per bobcat | | | | | | | | | | |
| | **Operators** | | | | | | | | | | | | |
| | 3 operators @ $30/hr | | $3600/week | | | | | | | | | | |
| | **Laborers** | | | | | | | | | | | | |
| | 2 laborers @ $20/hr | | $1600/week | | | | | | | | | | |
| Labor | (3 weeks to complete) | | | | | | | | | | | | |
| | 6 laborers@ $20/hr | | $4800/week | | | | | | | | | | |
| Material | | | | | | | | | | | | | |
| | Coir Logs | | $5.60/lf | (700 lf @ 5.60 = $3920) | | | | | | | | | |
| | Coir Matting | | $1.90/sy | (15000 sf = 1650 sy) | | 1sf = 0.11 sy | | 1650 x 1.9 = $3135 | | 120 sy/roll | | 14 rolls | |
| | Wood Stakes | | | | | | | | | | | | |
| | | 2x2x48" | 0.90/ea | 10 per log | 70 logs x 10 = 700 wood stakes | | | 700 x .9 = $630 | | | | | |
| | | 2x2x18" | 0.24/ ea | 12/180 sf | 15000 sf /180 x12 = 1000 | | | 1000 x 0.24 = $240 | | | | | |
| | Sod Staples | | $35/box | 40 staples/180 sf x 40 / 500 = 7 boxes | | | | (500 staples per box - 8 inch 8 gauge) | | | | | |
| | Coir Rope | | $25/roll | 4 rolls = $100 | | | | | | | | | |
| | Plant Plugs | | $1.20 ea | 2 foot spacing for 700 ft = 350 | | | 350 x $1.20 = $420 | | | | | | |
| | Woody Plants | | 60ft x 240ft on left bank; 50 ft x 240 ft right bank; 26,400 sf = 0.6 acres; 436 trees/ac; 1000 shrubs/ac | | | | | | | | | | |
| | Coir Tying Tools | | 70 for six tools | | | | | | | | | | |
| | Seed | | $500/acre | Seed mix to be wet prairie | | | $500 x 1 = $500 | | | | | | |
| | Willow Stakes | | $1.50/ea | (Approx.3000) | | | | | | | | | |
| | Stone | | $100/ton | | | | | | | | | | |
| | Cement (Dissipator) | | $65/yd (need 20 yd) | | | $1,300 | | | | | | | |
| | Soil | | $15/yd | 2000 yd3 | | $ 30,000 | | | | | | | |

## Beaver Run Bioengineering Preliminary Cost Estimate Based on Conceptual Design, Springdale, Ohio

| | | | | | | | | | | | | 0.00% | | 0.00% | | 0.00% | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QUANTITY | | LABOR | | | | MATERIAL | | EQUIPMENT | | SUB/DRCT | PRIME | TOTAL | OVHD | | PROFIT | TOTAL |
| TASK DESCRIPTION | No. Units | Unit | Hr/Unit | Tot. Hr | $/Hr | Cost | Unit $ | Cost | Unit $ | Cost | TOTAL | ADD-ON | DIRECT | ADD-ON | SUBTOTAL | ADD-ON | COST |
| EARTHWORK (OPERATORS & EQUIP) | 2 | WEEKS | 8.00 | 160.00 | 30.00 | 4800.00 | 0.00 | 0.00 | 9450 | 18900.00 | | | | | 23700.00 | | 23700.00 |
| INSTALLATION (LABORERS) | 2 | WEEKS | 8.00 | 480.00 | 20.17 | 9681.60 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 9681.60 | | 9681.60 |
| VEGETATION REMOVAL | 1 | LS | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | | | | 1000.00 | | 1000.00 |
| MATERIALS | | | | | | | | | | | | | | | | | |
| Coir logs | 40 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 56.00 | 2240.00 | 0.00 | 0.00 | | | | | 2240.00 | | 2240.00 |
| Coir matting | 12 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 228.00 | 2736.00 | 0.00 | 0.00 | | | | | 2736.00 | | 2736.00 |
| Wood Stakes (2x2x48") | 500 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 0.90 | 450.00 | 0.00 | 0.00 | | | | | 450.00 | | 450.00 |
| Wood Stakes (1x2x18") | 826 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 198.24 | 0.00 | 0.00 | | | | | 198.24 | | 198.24 |
| Sod Staples (6 inch, 8 gauge) | 5 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 35.00 | 175.00 | 0.00 | 0.00 | | | | | 175.00 | | 175.00 |
| Coir Rope | 2 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 25.00 | 50.00 | 0.00 | 0.00 | | | | | 50.00 | | 50.00 |
| Herbaceous Plant Plugs | 200 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 1.20 | 240.00 | 0.00 | 0.00 | | | | | 240.00 | | 240.00 |
| Trees | 80 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 60.00 | 4800.00 | 0.00 | 0.00 | | | | | 4800.00 | | 4800.00 |
| Shrubs | 180 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 3600.00 | 0.00 | 0.00 | | | | | 3600.00 | | 3600.00 |
| Mulch Mats | 260 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 4.00 | 1040.00 | 0.00 | 0.00 | | | | | 1040.00 | | 1040.00 |
| Coir Tying Tools | 0 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | | | | | 0.00 | | 0.00 |
| Seed | 1 | ACRE | 0.00 | 0.00 | 0.00 | 0.00 | 500.00 | 500.00 | 0.00 | 0.00 | | | | | 500.00 | | 500.00 |
| Brush Layers | 300 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 6000.00 | 0.00 | 0.00 | | | | | 6000.00 | | 6000.00 |
| Stone (gabion baskets) | 150 | TONS | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 3000.00 | 0.00 | 0.00 | | | | | 3000.00 | | 3000.00 |
| Hard Gabion | 76 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 47.00 | 3572.00 | 0.00 | 0.00 | | | | | 3572.00 | | 3572.00 |
| Soft Gabion | 270 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 4050.00 | 0.00 | 0.00 | | | | | 4050.00 | | 4050.00 |
| Soil | 184 | YD | 0.00 | 0.00 | 0.00 | 0.00 | 15.00 | 2760.00 | 0.00 | 0.00 | | | | | 2760.00 | | 2760.00 |
| Oversight by BHE | 2 | WEEKS | 8.00 | 80.00 | 110.00 | 8800.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 8800.00 | | 8800.00 |
| FINAL CLEAN-UP & RESTORATION | 1 | LS | | | | | | | | | | | | | 1000.00 | | 1000.00 |
| Contingency | 10% | | | | | | | | | | | | | | 7959.00 | | 7959.00 |
| TOTAL | | | | | | | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 87551.84 | 0.00 | 87551.84 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Assumptions in Support of Cost Estimate (Terrace and Widening Only) | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Earthwork & Installation | | | (2 weeks to complete) | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | **Equipment** | | | | | | | | | | | | | |
| | 2 backhoes | | $2800/week per backhoe | | | | | | | | | | | |
| | 1 dozer | | $2200/week per dozer | | | | | | | | | | | |
| | 1 frontloader | | $1650/week per frontloader | | | | | | | | | | | |
| | 1 Gradall | | $2800/week per gradall | | | | | | | | | | | |
| | **Operators** | | | | | | | | | | | | | |
| | 2 operators @ $30/hr | | $2400/week | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | **Laborers** | | | | | | | | | | | | | |
| | 6 laborers@ $20/hr | | $4800/week | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| Material | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | Coir Logs | | $5.60/lf | (395 lf @ 5.60 = $3920) | | | 40 logs | | | | | | | |
| | Coir Matting | | $1.90/sy | (12390 sf = 1362 s | | | 1sf = 0.11 sy | | | 1362 x 1.9 = $258 | | 120 sy/roll | | 12 rolls |
| | Wood Stakes | | | | | | | | | | | | | |
| | | 2x2x48" | 0.90/ea | 10 per log | | | 40 logs x 10 = 400 wood stakes | | | | | 400 x .9 = $360 | | |
| | | 2x2x18" | 0.24/ ea | 12/180 sf | | | 12390 sf /180 x12 = 826 | | | 826 x 0.24 = $200 | | | | |
| | Sod Staples | | $35/box | 40 staples/180 sf; 12390/180 x 40 =2753 staples/500 = 6 | | | | | | | | (500 staples per box - 8 inch 8 gauge) | | |
| | Coir Rope | | $25/roll | 2 rolls = $50 | | | | | | | | | | |
| | Plant Plugs | | $1.20 ea | 2 foot spacing for 395 ft = 20 | | | 200 x $1.20 = $240 | | | | | | | |
| | Woody Plants | | 20 ft x 395 ft right bank; 7,900 sf = 0.18 acres; 436 trees/ac; 1000 shrubs/ac | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | Seed | | $500/acr | Seed mix to be wet prairie | | | $500 x 1 = $500 | | | | | | | |
| | Branch Layers | | $20/ea | 12-15 stems per bundle; placement every 3 feet; 75 bundles per lift; 75x4= 300 bundles | | | | | | | | | | |
| | Stone (gabion baskets) | | $20/ton | 2 tons = 1 yd3 | | | 75 yd3=150 tons | | | 150 x 20 = $3,000 | | | | |
| | | | | | | | | | | | | | | |
| | Soil | | $15/yd | 17x225x1.3/per lift =4973 ft3 = 184 yc | | | | | | 184 x 15 = $2760 | | | | |
| | Hard Gabion | | 38 per layer; 2 laye | 76 gabions @ $47each= $3572 | | | | | | | | | | |
| | Soft Gabion | | 90 per layer; 3 laye | 270 gabions @ $15 each = $4,050 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

# Photo Exhibits - Existing Conditions of Beaver Run, Springdale, Ohio

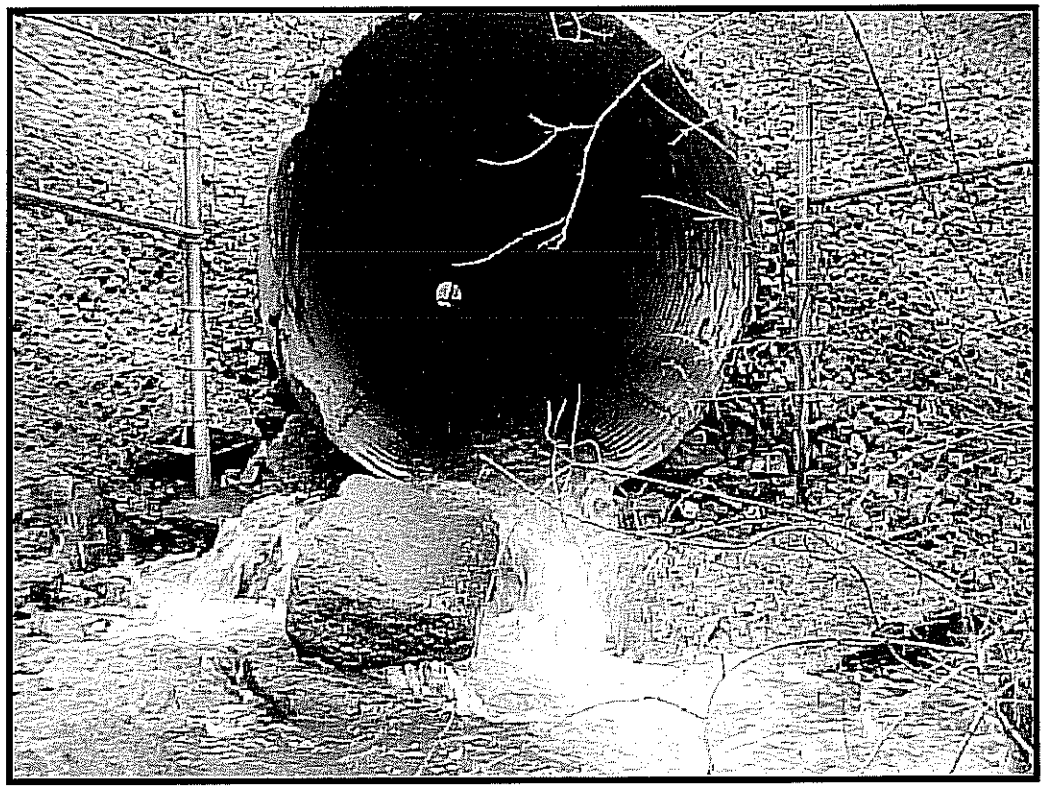

Photo 1. Upstream view of 84 inch pipe feeding the tributary.

Photo 2. Upstream view of tributary meander bend.

# Photo Exhibits - Existing Conditions of Beaver Run, Springdale, Ohio

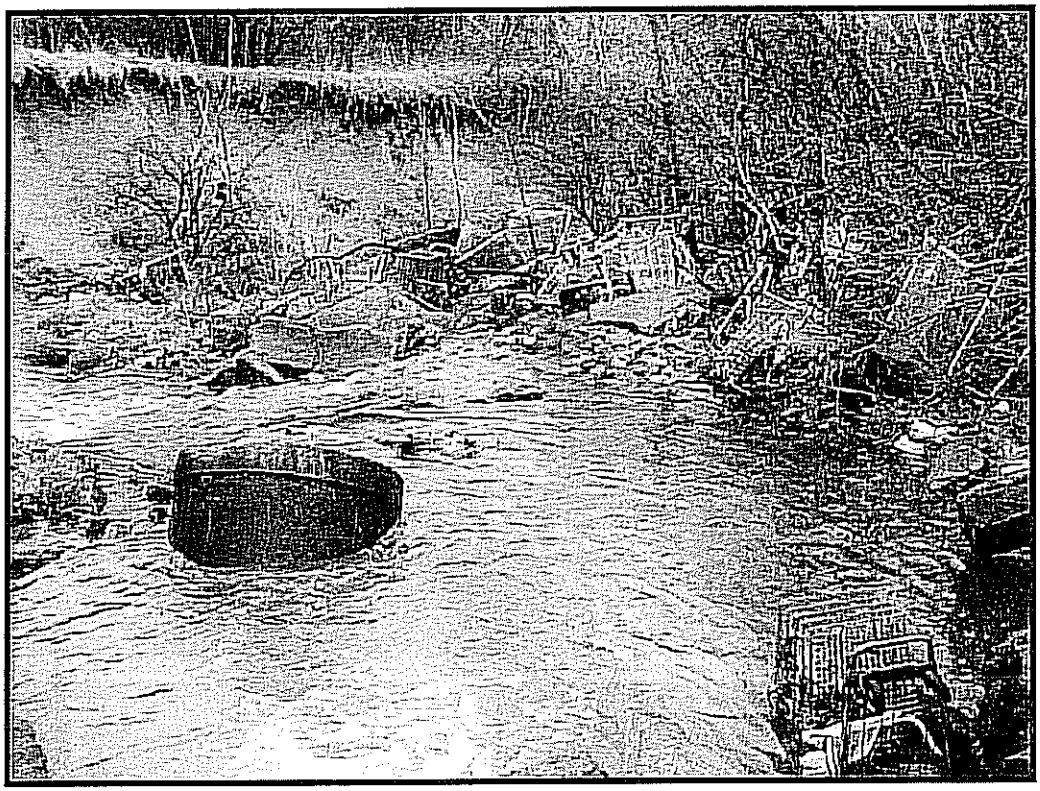

Photo 3. Downstream view of debris obstructions within the tributary just below the pipe.

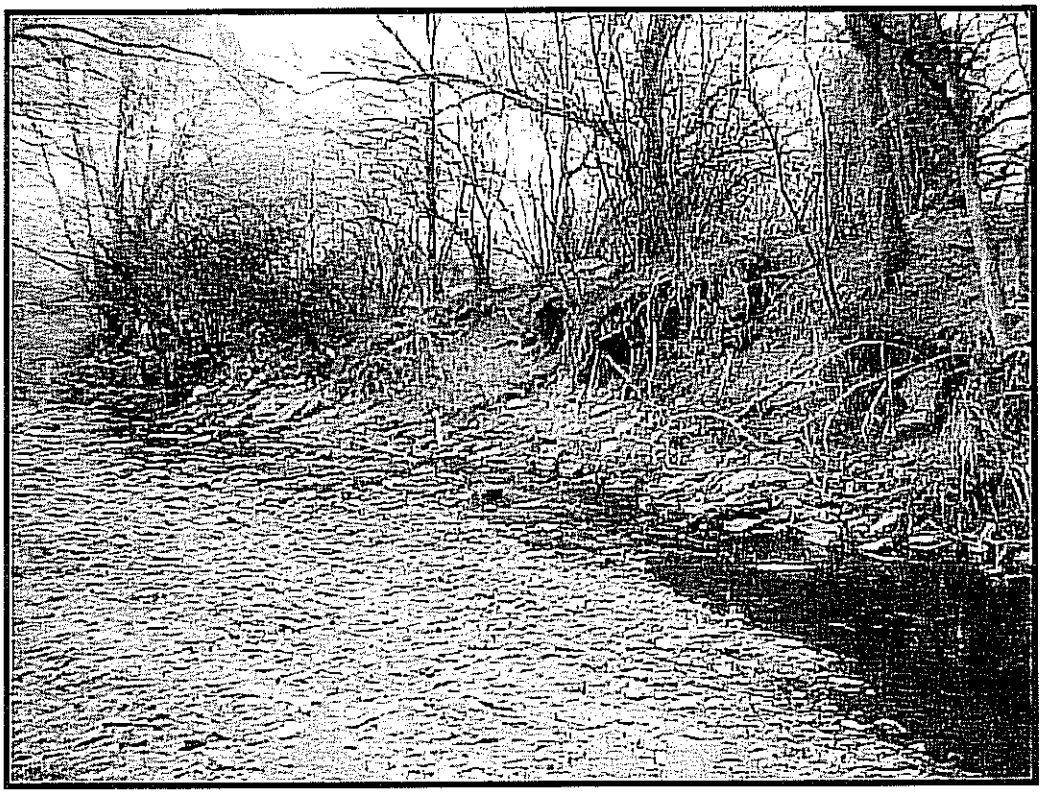

Photo 4. Bank sloughing within the main stem of Beaver Run, downstream of the tributary.

# In-kind Services Cost Estimate

## Beaver Run Bioengineering Preliminary Cost Estimate Based on Conceptual Design, Springdale, Ohio

| | | | | | | | | | | | | 0.00% | | 0.00% | | 0.00% | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QUANTITY | | LABOR | | | | MATERIAL | | EQUIPMENT | | SUB/DRCT | PRIME | TOTAL | OVHD | | PROFIT | TOTAL |
| TASK DESCRIPTION | No. Units | Unit | Hr/Unit | Tot. Hr | $/Hr | Cost | Unit $ | Cost | Unit $ | Cost | TOTAL | ADD-ON | DIRECT | ADD-ON | SUBTOTAL | ADD-ON | COST |
| DEBRIS REMOVAL (OPER. & EQUIP) | 2 | WEEKS | 8.00 | 160.00 | 30.00 | 4800.00 | 0.00 | 0.00 | 4450 | 8900.00 | | | | | 13700.00 | | 13700.00 |
| INSTALLATION (LABORERS) | 2 | WEEKS | 8.00 | 320.00 | 30.00 | 9600.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 9600.00 | | 9600.00 |
| DEBRIS DISPOSITION | 400 | TON | | 0.00 | | 0.00 | 35.00 | 14000.00 | | 0.00 | | | | | 14000.00 | | 14000.00 |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| HONEYSUCKLE REMOVAL | | | | | | | | | | | | | | | | | |
| Labor (Operators) | 2 | days | 8.00 | 32.00 | 30.00 | 960.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 960.00 | | 960.00 |
| Labor (laborers) | 2 | EACH | 8.00 | 96.00 | 30.00 | 2880.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 2880.00 | | 2880.00 |
| Chipper | 2 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 80.00 | 160.00 | 0.00 | 0.00 | | | | | 160.00 | | 160.00 |
| Frontloader | 2 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 330.00 | 660.00 | 0.00 | 0.00 | | | | | 660.00 | | 660.00 |
| Sprayers | 4 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | 40.00 | 0.00 | 0.00 | | | | | 40.00 | | 40.00 |
| Herbicide | 2 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 50.00 | 100.00 | 0.00 | 0.00 | | | | | 100.00 | | 100.00 |
| | | | | | | | | | | | | | | | | | |
| Educational Programs | 6 | EACH | 0.00 | 0.00 | 0.00 | 0.00 | 1,500 | 9000.00 | 0.00 | 0.00 | | | | | 9000.00 | | 9000.00 |
| | | | | | | | | | | | | | | | | | |
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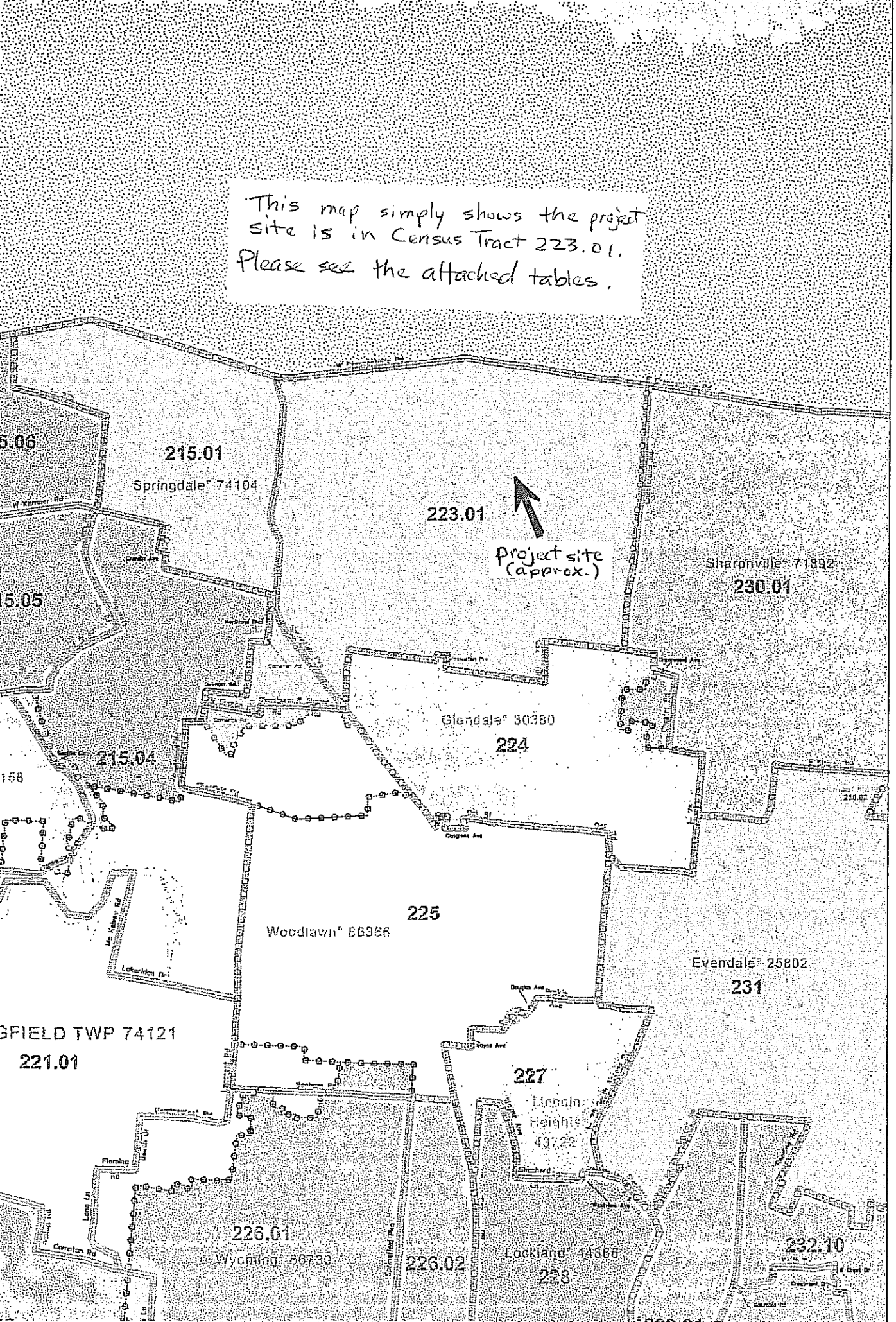
| TOTAL | | | | | | | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 51100.00 | 0.00 | 51100.00 |

| Assumptions in Support of Cost Estimate (In-kind Services Only) | | | |
|---|---|---|---|
| Rock & Debris Removal | (2 weeks to complete) | | |
| | **Equipment** | | |
| | 1 backhoe | $2800/week per backhoe | |
| | 1 frontloader | $1650/week per frontloader | |
| | 1 dump truck | $35/ton | |
| | **Operators** | | |
| | 2 operators @ $30/hr | $2400/week | |
| | **Laborers** | | |
| | 4 laborers@ $30/hr | $4800/week | |
| Honeysuckle Removal | (2 days) | | |
| | **Equipment** | | |
| | 2 chainsaws | $50/day per chainsaw | |
| | 1 chipper | $80/day per day | |
| | 1 frontloader | $1650/week per frontloader | |
| | 2 sprayers | $10/day | |
| | Herbicide | $50/gallon | |
| | **Operators** | | |
| | 2 operators @ $30/hr | $2400/week | |
| | **Laborers** | | |
| | 6 laborers@ $30/hr | $7200/week | |
| Demonstration/Education Programs | | | |
| | Educational Program | $1500/Program | Assumes preparation time, materials, presentations,etc.. |

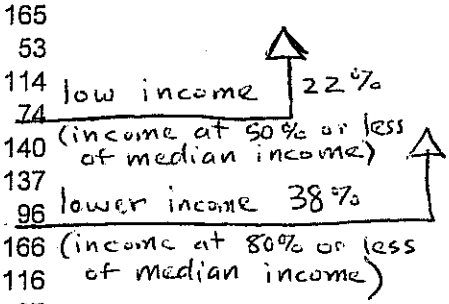
# Appendix C: Demographic Information

This map simply shows the project site is in Census Tract 223.01. Please see the attached tables.



**□P080. HOUSEHOLD INCOME IN 1989 - Universe: Households**
Data Set: 1990 Summary Tape File 3 (STF 3) - Sample data

| | Tract 223.01, Hamilton County, Ohio |
|---|---|
| Less than $5,000 | 103 |
| $5,000 to $9,999 | 165 |
| $10,000 to $12,499 | 53 |
| $12,500 to $14,999 | 114 |
| $15,000 to $17,499 | 74 |
| $17,500 to $19,999 | 140 |
| $20,000 to $22,499 | 137 |
| $22,500 to $24,999 | 96 |
| $25,000 to $27,499 | 166 |
| $27,500 to $29,999 | 116 |
| $30,000 to $32,499 | 87 |
| $32,500 to $34,999 | 52 |
| $35,000 to $37,499 | 81 |
| $37,500 to $39,999 | 106 |
| $40,000 to $42,499 | 88 |
| $42,500 to $44,999 | 59 |
| $45,000 to $47,499 | 77 |
| $47,500 to $49,999 | 83 |
| $50,000 to $54,999 | 182 |
| $55,000 to $59,999 | 73 |
| $60,000 to $74,999 | 137 |
| $75,000 to $99,999 | 108 |
| $100,000 to $124,999 | 17 |
| $125,000 to $149,999 | 0 |
| $150,000 or more | 28 |




U.S. Bureau of the Census<BR>1990 Census of Population and Housing

**□P080A. MEDIAN HOUSEHOLD INCOME IN 1989 - Universe: Households**
Data Set: 1990 Summary Tape File 3 (STF 3) - Sample data

| | Tract 223.01, Hamilton County, Ohio |
|---|---|
| Median household income in 1989 | 30,201 |

U.S. Bureau of the Census<BR>1990 Census of Population and Housing

U.S. Census Bureau American FactFinder



## Detailed Tables

C

P3. RACE [71] - Universe: Total population
Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm.

| | Census Tract 223.01, Hamilton County, Ohio |
|---|---|
| Total: | 5,594 |
| Population of one race: | 5,493 |
| White alone | 3,814 |
| Black or African American alone | 1,399 |
| American Indian and Alaska Native alone | 9 |
| Asian alone | 139 |
| Native Hawaiian and Other Pacific Islander alone | 1 |
| Some other race alone | 131 |
| Population of two or more races: | 101 |
| Population of two races: | 97 |
| White; Black or African American | 27 |
| White; American Indian and Alaska Native | 17 |
| White; Asian | 10 |
| White; Native Hawaiian and Other Pacific Islander | 9 |
| White; Some other race | 22 |
| Black or African American; American Indian and Alaska Native | 8 |
| Black or African American; Asian | 2 |
| Black or African American; Native Hawaiian and Other Pacific Islander | 0 |
| Black or African American; Some other race | 2 |
| American Indian and Alaska Native; Asian | 0 |
| American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander | 0 |
| American Indian and Alaska Native; Some other race | 0 |
| Asian; Native Hawaiian and Other Pacific Islander | 0 |
| Asian; Some other race | 0 |
| Native Hawaiian and Other Pacific Islander; Some other race | 0 |
| Population of three races: | 0 |
| White; Black or African American; American Indian and Alaska Native | 0 |
| White; Black or African American; Asian | 0 |
| White; Black or African American; Native Hawaiian and Other Pacific Islander | 0 |
| White; Black or African American; Some other race | 0 |
| White; American Indian and Alaska Native; Asian | 0 |
| White; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander | 0 |
| White; American Indian and Alaska Native; Some other race | 0 |
| White; Asian; Native Hawaiian and Other Pacific Islander | 0 |
| White; Asian; Some other race | 0 |
| White; Native Hawaiian and Other Pacific Islander; Some other race | 0 |
| Black or African American; American Indian and Alaska Native; Asian | 0 |
| Black or African American; American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander | 0 |
| Black or African American; American Indian and Alaska Native; Some other race | 0 |
| Black or African American; Asian; Native Hawaiian and Other Pacific Islander | 0 |
| Black or African American; Asian; Some other race | 0 |

The table is all zeros from this point on.

P18. HOUSEHOLD SIZE, HOUSEHOLD TYPE, AND PRESENCE OF OWN CHILDREN [19] - Universe: Households
Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm.

| | Census Tract 223.01, Hamilton County, Ohio |
|---|---|
| Total: | 2,405 |
| 1-person household: | 914 |
| Male householder | 241 |
| Female householder | 673 |
| 2 or more person household: | 1,491 |
| Family households: | 1,374 |
| Married-couple family: | 864 |
| With own children under 18 years | 345 |
| No own children under 18 years | 519 |
| Other family: | 510 |
| Male householder, no wife present: | 91 |
| With own children under 18 years | 53 |
| No own children under 18 years | 38 |
| Female householder, no husband present: | 419 |
| With own children under 18 years | 306 |
| No own children under 18 years | 113 |
| Nonfamily households: | 117 |
| Male householder | 66 |
| Female householder | 51 |

U.S. Census Bureau
Census 2000

H14. TENURE BY RACE OF HOUSEHOLDER [17] - Universe: Occupied housing units
Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm.

| | Census Tract 223.01, Hamilton County, Ohio |
|---|---|
| Total: | 2,405 |
| Owner occupied: | 1,036 |
| Householder who is White alone | 942 |
| Householder who is Black or African American alone | 66 |
| Householder who is American Indian and Alaska Native alone | 1 |
| Householder who is Asian alone | 15 |
| Householder who is Native Hawaiian and Other Pacific Islander alone | 0 |
| Householder who is Some other race alone | 3 |
| Householder who is Two or more races | 9 |
| Renter occupied: | 1,369 |
| Householder who is White alone | 845 |
| Householder who is Black or African American alone | 455 |
| Householder who is American Indian and Alaska Native alone | 3 |
| Householder who is Asian alone | 26 |
| Householder who is Native Hawaiian and Other Pacific Islander alone | 0 |
| Householder who is Some other race alone | 23 |
| Householder who is Two or more races | 17 |

U.S. Census Bureau
Census 2000

AGE GROUPS

NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://factfinder.census.gov/home/en/datanotes/expsf1u.htm.

| | Census Tract 223.01, Hamilton County, Ohio |
|---|---|
| Total: | 5,594 |
| Male: | 2,391 |
| Under 5 years | 208 |
| 5 to 9 years | 202 |
| 10 to 14 years | 210 |
| 15 to 17 years | 107 |
| 18 and 19 years | 59 |
| 20 years | 25 |
| 21 years | 38 |
| 22 to 24 years | 91 |
| 25 to 29 years | 169 |
| 30 to 34 years | 177 |
| 35 to 39 years | 161 |
| 40 to 44 years | 155 |
| 45 to 49 years | 127 |
| 50 to 54 years | 117 |
| 55 to 59 years | 93 |
| 60 and 61 years | 31 |
| 62 to 64 years | 44 |
| 65 and 66 years | 30 |
| 67 to 69 years | 38 |
| 70 to 74 years | 87 |
| 75 to 79 years | 77 |
| 80 to 84 years | 62 |
| 85 years and over | 83 |
| Female: | 3,203 |
| Under 5 years | 188 |
| 5 to 9 years | 205 |
| 10 to 14 years | 215 |
| 15 to 17 years | 101 |
| 18 and 19 years | 57 |
| 20 years | 31 |
| 21 years | 29 |
| 22 to 24 years | 104 |
| 25 to 29 years | 236 |
| 30 to 34 years | 216 |
| 35 to 39 years | 210 |
| 40 to 44 years | 167 |
| 45 to 49 years | 158 |
| 50 to 54 years | 162 |
| 55 to 59 years | 100 |
| 60 and 61 years | 43 |
| 62 to 64 years | 61 |
| 65 and 66 years | 50 |
| 67 to 69 years | 91 |
| 70 to 74 years | 146 |
| 75 to 79 years | 176 |
| 80 to 84 years | 163 |
| 85 years and over | 294 |

U.S. Census Bureau
Census 2000

# Appendix D: Supporting Plans

✓ MSD is seeking federal funding to develop a comprehensive wet weather pollution control strategy, addressing stormwater, CSOs, and sanitary sewer overflows and related issues.

***Key Challenges***

Challenges in the achievement of this goal include:

1) Coordinating efforts between the local Mill Creek stakeholders and the COE offices in Louisville and Washington, D.C.

2) Devising a basinwide system to determine if the no net-loss criterion for natural filtering areas is being met.

**GOAL 4** **IMPROVE AND PROTECT THE ECOLOGICAL INTEGRITY OF THE MILL CREEK AND ITS TRIBUTARIES TO INCREASE THE DIVERSITY OF PLANTS AND ANIMALS.**

***Improvement Problem***

Urbanization, industrialization, channelization and other hydromodifications have severely compromised the habitat quality of many miles of the Mill Creek and its tributaries. Human activities, resulting in increased runoff and pollutant loads, have profoundly altered the flow, shape, water quality and ecology of these streams. Portions of the lower eight miles of the mainstem have undergone permanent modification due to placement of artificial substrates such as concrete.The stream system now supports only a portion of the aquatic species it once did.

***Improvement Strategy***

Revegetate the riparian corridor, where feasible, to create buffer strips, filter pollutants and absorb runoff. Apply proven instream restoration techniques to improve degraded habitats where bottom substrates are suitable. Promote sound stormwater management and land use practices throughout the watershed, including new development sites in the upper stream reaches in Butler County.

***Progress Towards the Goal***

✓ A comprehensive water quality survey of the Mill Creek basin, conducted by Ohio EPA in 1992, yielded in-depth information on the basin's aquatic biota and its physical and chemical water quality and also provided reference data to evaluate habitat improvements.

✓ Habitats of special value along the stream corridor have been identified by Xavier University (see Chapter 2). Further habitat evaluations will be undertaken by the COE as part of their studies for a reformulated Mill Creek Local Flood Control Project.

✓ Local governments in some communities and the SWCDs in Butler and Hamilton counties have developed stormwater and sediment

***Key Challenges***

Several challenges affect the attainment of Goal 5:

1) The most significant challenge is the availability of funding to provide the personnel and materials needed to stimulate interest and involvement.

2) A stronger relationship between the public and the Mill Creek must be established, not only through education but also through increased recreational opportunities.

3) Educational efforts must be directed to diverse constituents, including public officials, representatives of business and industry, suburban residents, and urban minorities.

## GOAL 6 MAKE THE MILL CREEK AESTHETICALLY PLEASING TO RESIDENTS AND VISITORS ALIKE.

***Improvement Problem***

The urbanization of the Mill Creek watershed has caused extensive deforestation. Many miles along the Mill Creek and its tributaries have little or no forest cover. Some areas that do are isolated. Riparian forests play a critical role in maintaining stream water quality, preventing streambank erosion and providing aquatic and terrestrial habitat. Aging industrial facilities, combined sewer overflows, trash and stream channel modifications have caused further unsightliness of the stream system. The proximity of degraded, channelized stream segments to Interstate 75 does not present a positive image to motorists entering Ohio from the south or travelling through the watershed.

***Improvement Strategy***

Expand the vegetative cover throughout the watershed. Begin by identifying potential areas for reforestation and other areas for establishing native prairies along the mainstem and its tributaries and prioritzing them. Set a goal to revegetate a specific number of linear miles within a certain time frame. Connect green spaces with greenways wherever possible. Take advantage of existing local, state, federal and private resources and develop incentives to revegetate suitable sites to beautify the watershed and naturally increase its stormwater filtering and flood control capacities. Promote green space and plantings within new developments in the watershed. Use the City of Dayton as a model of aesthetic streamside development. Remove trash trapped in the stream system and prevent future dumping and littering.

# 2. VISION AND GOALS OF THE PLAN

## Benefits of a Greenway System

A Greenway System within the Mill Creek Watershed would provide a variety of benefits for the residents of Hamilton and Butler Counties. By establishing riparian buffers a greenway system would improve water quality, protect wetlands and other valuable habitat, help reduce flooding downstream, and buffer adjacent land uses. In addition, greenways typically incorporate trails for recreation and alternative transportation, on-road bicycle and pedestrian facilities, passive and active park facilities, and other types of open space. As recreational amenities, greenways increase the value of adjacent private properties, attract businesses to the area, and promote tourism in the region. Further information about the benefits of greenways can be found in Appendix B.

## VISION STATEMENT

Keeping the potential benefits of greenways in mind, the Greenway Committee of the Mill Creek Watershed Council developed the following vision statement for the Mill Creek Watershed:

***The vision of the Mill Creek Watershed is a healthy ecological system of hills, valleys, and stream corridors that serve to enrich the lives of residents in both Hamilton and Butler Counties. The Mill Creek Watershed Greenway System will improve floodplain management and water quality within the primary and tributary channels of Mill Creek and will contribute to the economic well-being of the Greater Cincinnati metropolitan region.***

This vision will be realized through the adoption and implementation of the following project goals. Some of these goals are repetitive and may appear under several categories. Many initiatives are already underway and offer opportunities for volunteers to become involved immediately in working toward the long-term greenway vision.

## Environmental Goal

- Restore riparian corridor habitat throughout the watershed to improve flora and fauna species diversity and number;
- Clean up toxic areas and hazardous waste to prevent adverse health effects on people and wildlife;
- Encourage biodiversity through removal of invasive exotic species and reintroduction of native species and natural communities;
- Maximize wildlife habitat in a manner that is consistent with community infrastructure and development needs;
- Promote pollution prevention strategies to be adopted by businesses, institutions and individuals within the watershed;
- Encourage environmental responsibility and stewardship of natural resources

*Figure 11: A scenic view of the headwaters section of Mill Creek. (Photo courtesy of Butler Soil & Water Conservation District)*

among all sectors of the watershed;
- Promote air quality improvements in the region by providing facilities for alternative forms of transportation;
- Develop environmentally friendly greenways through the use of recycled materials, native vegetation and soil bioengineering techniques.

*Figure 12: Eroding stream banks diminish water quality and the carrying capacity of the stream channel. (Photo by FMSM)*

## Water Quality Goal

- Ensure/encourage compliance with, and enforcement of existing local, state and federal water quality regulations;
- Provide vegetated buffers and wetlands to treat and prevent nonpoint source pollution;
- Utilize best management practices to slow runoff and pollutant loading on streams;
- Expand local volunteer water quality monitoring and educational programs;
- Educate local residents as to the importance of streamside vegetated buffers and other best management practices;
- Improve water quality in surface and groundwater supplies within the watershed to enhance human recreational use and fish and wildlife habitat;
- Work with agencies to reduce contamination from combined sewer overflows (CSOs) as quickly as possible.

## Economic Goal

- Implement a watershed-wide greenway strategy that encourages sustainable economic development and does not serve as a barrier to growth;
- Contribute to the economic well-being of the community by providing employment opportunities for watershed residents;
- Increase residential, commercial and industrial property values, and the local tax base, through the development of the greenway system; and define, quantify and promote these economic benefits;
- Work to coordinate greenway development with efforts to redevelop abandoned industrial sites (brownfields);
- Promote tourism by connecting historic/cultural sites along the greenway;
- Help to reestablish the Mill Creek Valley as a center for economic and community activity.

## Recreation Goal

- Return Mill Creek to an attractive destination for local residents and visitors.
- Develop passive recreation facilities along greenway lands close to where residents live, work and play.
- Construct a comprehensive system of trails on publicly owned or leased properties.
- Promote improved water quality to provide for the recreational use of waterways within the watershed, including fishing, canoeing and swimming;
- Link historic and significant natural sites throughout the watershed with the greenway system;
- Improve water and air quality within the watershed to benefit public health;
- Regularly inform and educate watershed businesses, municipalities and residents as to the level of contamination and efforts to reduce pollution in Mill Creek and its tributaries;
- Work with agencies to improve water quality so Mill Creek is designated as safe for human contact.
- Promote safety and security as key elements of the new recreational greenway system.

# Mill Creek Watershed Council

Dave Buesking, Chair
Dennis Murphey, Vice Chair
Cecil Osborn, Secretary/Treasurer
Nancy Ellwood, Executive Director


April 1, 2002

Natural Resources Assistance Council
c/o Mr. Ron Miller, Executive Director
Hamilton County Regional Planning Commission
County Administration Building Room 807
138 East Court Street
Cincinnati, Ohio 45202

Dear Members of the NRAC:

The Mill Creek Watershed Council supports the application by the City of Springdale and project partners to restore a portion of Beaver Run at Chamberlain Park to a healthier, more natural condition. This project will demonstrate environmentally friendly best management practices that have been endorsed by the Mill Creek Watershed Council. The bioengineering techniques proposed by Springdale and BHE Environmental, Inc. for this project will also complement the long term Mill Creek Watershed Action Plan currently under development.

As the Beaver Run project progresses, the Watershed Council will assist with community-based planning sessions on the project's demonstration/education component. Through its web site, newsletter and e-mail capabilities, the Watershed Council is also willing to assist with project publicity and volunteer recruitment.

The Council believes this endeavor is worthy of consideration for a Clean Ohio Conservation Fund grant. Please call me at 513.563.8800 if you have any questions.

Sincerely,

Nancy Ellwood
Executive Director


One North Commerce Park Drive, Suite 222, Cincinnati, OH 45215
Website: www.millcreekwatershed.org
Phone: 513.563.8800 Fax: 513.563.8810 E-mail: nellwood@millcreekwatershed.org

**OHIO PUBLIC WORKS FOR YOU**

*THE OHIO PUBLIC WORKS COMMISSION*
65 East State Street, Suite 312, Columbus, Ohio 43215-4213

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James F. Mears
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James W. Sumner
Joseph B. Williams

*DIRECTOR*
W. Laurence Bicking

07/01/2002

**Doyle H. Webster**
**Mayor**
**The City of Springdale**
**11700 Springfield Pike,**
**Cincinati, OH 45246**

**Subdivision Code : 061-74104**

**Dear Mr. Webster,**

Your request for financial assistance from the Ohio Public Works Commission has been approved for the project entitled **BEAVER RUN RIPARION CORRIDOR RESTORATION PROJECT** in the amount of **$ 208,821**. This **Grant** has been assigned project number **CBAAC**. Please use this number when calling or writing our office.

The enclosed Project Agreement defines **The City of Springdale**'s responsibilities in accepting this financial assistance. Please review it carefully to ensure that the project has been accurately described and defined throughout the agreement's appendices. If any errors are found, or if any information needs to be updated, please contact us immediately.

Please execute the Project Agreement by signing both copies. **You must return one fully executed copy to the Commission within forty-five (45) days**, and retain the other for your files. This project may not proceed with acquisition, construction or purchase of materials, **until you have completed the following;** 1) returned one executed copy of the agreement to OPWC, 2) prepared and sent to OPWC a "Request to Proceed" 3) received approval from OPWC on your "Request to Proceed"

The Project Manager and Chief Financial Officer named in the agreement will each receive a separate mailing that explains their respective duties regarding project implementation. The Project Manager has also received a reference copy of the enclosed Project Agreement for their records. All of our project management related documents for the Clean Ohio Program are located at our Web page at **www.pwc.state.oh.us.** Once there, click on the link titled **"Clean Ohio Program".**

If you have any questions about any aspect of the program, please do not hesitate to call your Program Representative, **Rob White**, at **614/752-9344**.

Sincerely,

W. Laurence Bicking
Director

cc: District Committee